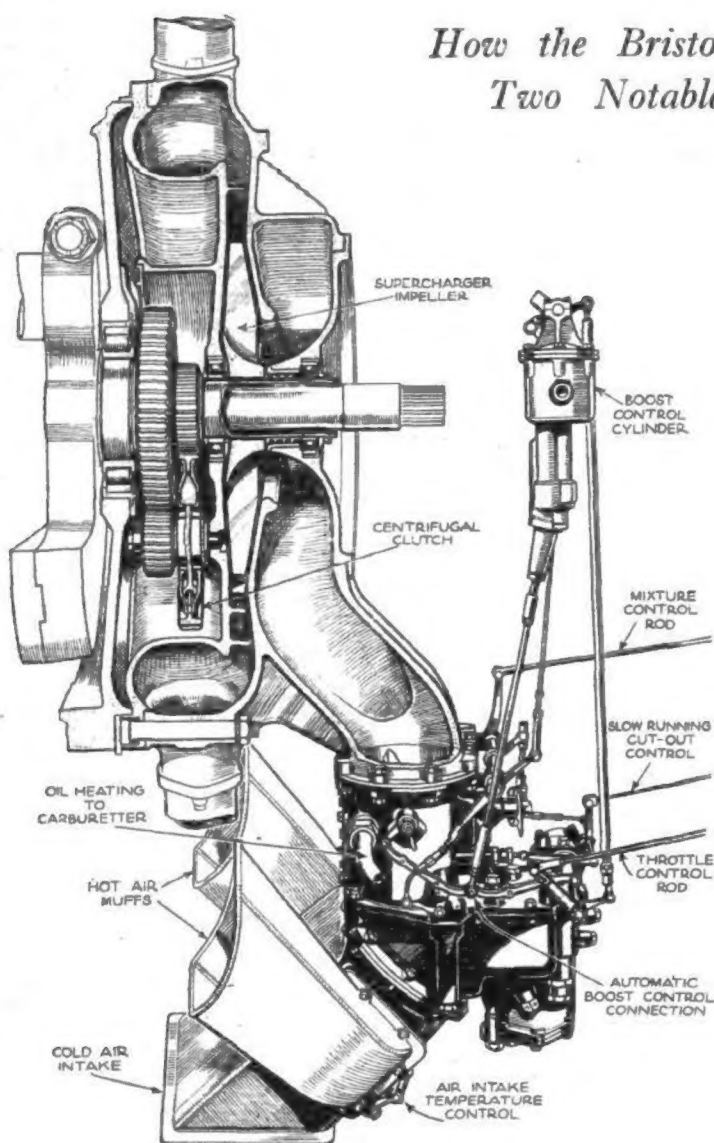


IMPROVING the BREED

*How the Bristol Pegasus and Mercury were Developed :
Two Notable British Engines Described in Detail*



The layout of the supercharger drive, induction system and carburettor. The impeller of the supercharger is driven from the rear end of the crankshaft through a set of three planet gears, of which one is shown in the drawing. Note that in addition to the use of the hot-air intake, the carburettor body is oil-heated. The purpose of the automatic boost control is to prevent the pilot from giving the engine full supercharge until the rated height is reached. In the photograph on the right is the drive for the impeller.

HE would have been a bold man indeed who would have ventured, some seventeen years ago, to prophesy that one day Mr. A. H. R. Fedden would be getting about 1,000 h.p. out of a nine-cylinder radial engine of the same capacity as the Cosmos Jupiter engine which Mr. Fedden had then just produced, and not differing in fundamental conception from it.

The designs for the Jupiter engine were accepted by the Government in July, 1918, and the first experimental engine was completed before the end of October the same year. This engine was fitted in a Bristol Badger. Developments followed, and by the end of 1919 the ungeared Jupiter developed 400 b.h.p. at 1,650 r.p.m., while a geared version with epicyclic airscrew

reduction gear developed 450 b.h.p. at 1,850 r.p.m. Both engines had a bore of $5\frac{1}{4}$ in. and a stroke of $7\frac{1}{4}$ in., and the weight of the direct-drive engine was 636 lb., while the geared version weighed 757 lb.

The real beginning of serious development and improvement was the taking over of Mr. Fedden and his chief technical assistant, Mr. Butler, by the Bristol Aeroplane Co., Ltd., as well as the drawings and designs from the Cosmos Engineering Company, which had started the work. The great resources of the Bristol company made it possible to spend the necessary capital on equipment. This happened in 1920, and since that time Mr. Fedden and those associated with him have never looked back. That they have encountered setbacks and difficulties goes without saying, but present-day Bristol aero engines have achieved a world-wide reputation for clever design and superb workmanship, a reputation which could have been established on nothing but sheer merit.

Visitors to the forthcoming Paris Aero Show will have an opportunity to see some of the latest Bristol engine types. For the benefit of others, this description and illustrations will, it is hoped, prove an acceptable substitute.

For the present, two main Bristol general types come into the picture, although these are again subdivided in accordance with variations in supercharging, airscrew gearing and similar features. These two types are the Pegasus and the Mercury. The former has been used extensively in both civil and military aircraft, and its applications are growing almost daily. The latter is regarded mainly as a military type, its smaller diameter making it particularly

